Colloid Journal of the Russian Academy of Sciences: Kolloidnyi Zhurnal 2002 vol.64 N6, pages 734-739

Solubility, acid-base and complexation properties of calix[4]resorcinarene in aqueous solutions of nonionic surfactants

Mustafina A., Amirov R., Elistratova Y., Skripacheva V., Nugaeva Z., Kazakova E.
Kazan Federal University, 420008, Kremlevskaya 18, Kazan, Russia

Abstract

Solubility and acid-base properties of calix[4]resorcinarene (H8L) in aqueous solutions of nonionic surfactants Triton X-100, Triton X-405, and Brij-35, as well as isopropanol were studied by pH-potentiometry. The dependence of the amount of a nonionic surfactant necessary to dissolve H8L on the length of ethylene oxide chain was found. The dissociation constants of macrocycle for the first four steps are low sensitive to the medium nature (micellar or water-alcohol solutions). Complexation ability of the [H8-nL]n- anions with respect to tetramethyl- and tetraethylammonium, N-methylpyridinium, and [Co(En)2(C2O4)]+ cations was studied by pH-potentiometry. A noticeable increase in the selectivity of guest-host binding was found on going from aqueous or water-alcohol to micellar solutions.

http://dx.doi.org/10.1023/A:1021554323367